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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/551,339	09/14/2006	Ilias Manettas	2003P00537WOUS	4621

46726 7590 03/15/2010

BSH HOME APPLIANCES CORPORATION
INTELLECTUAL PROPERTY DEPARTMENT
100 BOSCH BOULEVARD
NEW BERN, NC 28562

EXAMINER	
COX, ALEXIS K	
ART UNIT	PAPER NUMBER
3744	

NOTIFICATION DATE	DELIVERY MODE
03/15/2010	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

NBN-IntelProp@bshg.com

Office Action Summary	Application No.	Applicant(s)	
	10/551,339	MANETTAS ET AL.	
	Examiner	Art Unit	
	ALEXIS K. COX	3744	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *19 November 2009*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *11-24* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *11-24* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claim 22 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claim 22, the applicant's attention is respectfully called to claim 21, which requires the measurement device to be "directly displaceable by air flow through said passage." Claim 22 explicitly claims the measuring device to be a "wind wheel." The examiner respectfully notes that this does not appear to be a common term in the art. However, based on the specification, it appears that a "wind wheel" is a device which rotates in response to the presence of wind; this is solely a rotational displacement, where "directly displaceable" has previously been interpreted to require a linear displacement in the direction of air movement, as can clearly be seen from the previous rejection of claim 21. For the purpose of examination, rejections which include both interpretations, one which more broadly encompasses rotational displacement as included and one which does which does not, have been written concerning claim 21, and claim 22 has been rejected according to the broader interpretation of claim 21.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 11, 15-18, and 20 are rejected under 35 U.S.C. 102(b) as being anticipated by Tilmanis (US Patent No. 3,839,878).

Regarding claims 11, 15, and 16, Tilmanis discloses a refrigeration device, comprising a thermally insulating housing (10, see column 3 line 53, see also figure 1) enclosing an inner chamber (14, see column 3 lines 54-55) and an evaporator arranged in said housing (18, see column 3 lines 59-60) separated from the inner chamber, the evaporator being in an air passage separated from and communicating with the inner chamber, as without the air passage the inner chamber would not be cooled by the evaporator; a pair of temperature sensors (36, 38, see column 4 line 10) placed in the vicinity of the evaporator such that for a given thickness of the ice layer only one of the temperature sensors is embedded in the ice layer (see column 4 lines 17-19), the temperature sensors constituting a measuring device arranged in the air passage to provide a measured signal representative of the air flow through the air passage; a heating device for heating the evaporator (see column 3 lines 63-65); and a monitoring and control circuit connected to the pair of temperature sensors (see column 4 lines 30-41) which determines the difference between the temperature values detected by the

Comment [F1]: How is air flow being measured by Tilmanis?

pair of temperature sensors and activates the heating device when the temperature difference exceeds a predetermined value (see column 4 lines 42-47).

Regarding claims 17-18, the refrigeration device of Tilmanis further has a first sensor arranged directly on the surface of the evaporator (36, see column 4 lines 17-18).

Regarding claim 20, Tilmanis discloses a refrigeration device, comprising a thermally insulating housing (10, see column 3 line 53, see also figure 1) enclosing an inner chamber (14, see column 3 lines 54-55) and an evaporator arranged in said housing (18, see column 3 lines 59-60) separated from the inner chamber, the evaporator being in an air passage separated from and communicating with the inner chamber, as without the air passage the inner chamber would not be cooled by the evaporator; a heating device for heating the evaporator (see column 3 lines 63-65); and a monitoring and control circuit (see column 4 lines 30-41) which estimates an air flow through the air passage in which the evaporator is arranged by determining the difference between the temperature values detected by a pair of temperature sensors (36, 38, see column 4 line 10) and triggers a defrosting process by activating the heating device when the temperature difference exceeds a predetermined value (see column 4 lines 42-47), which is when the estimated air flow falls below a predetermined threshold value.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

7. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

8. Claims 12 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tilmanis (US Patent No. 3,839,878) in view of Howland (US Patent No. 3,726,104).

Regarding claim 12, it is noted that Tilmanis does not disclose the measuring device to include a body directly driven to move by said air flow in said passage and a sensor to record the movement of said body indicative of air flow speed and said control circuit to determine a fall below said threshold value when air flow speed falls below

said threshold value. Howland explicitly discloses the use of a body (15, see column 3 lines 43-51), which is a wind wheel, driven to move by the air flow in the passage from the evaporator to the cooled space (see figure 1), and a sensor which records the movement of the body indicative of the air flow speed and the control circuit to determine a fall below said threshold value when the recorded air flow speed falls below the threshold value (see column 3 lines 55-60), as an increase in the speed past impeller 15 will be a consequence of a decrease in air flow past the evaporator. As the systems of Tilmanis and Howland are both concerned with the proper timing of defrost operation in refrigeration systems, it would have been obvious to one of ordinary skill in the art at the time of the invention to substitute the impeller of Howland for the temperature sensors of Tilmanis in order to provide an equivalent control of the defrost of the system for which it is easier to detect damage to the air flow sensor, as it is easier to detect a broken impeller than a broken temperature sensor.

9. Claims 13, 21, and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tilmanis (US Patent No. 3,839,878) in view of Howland (US Patent No. 3,726,104) and Berrett et al (US Patent No. 3,716,096).

Regarding claims 13, 21, and 23, it is noted that Tilmanis does not disclose the measuring device to include a directly displaceable elastic element which can be deflected from a rest position by said air flow in said passage and a sensor to record the deflection of said element indicative of air flow speed and said control circuit determines a fall below said threshold value when the recorded deflection falls below said threshold value. Howland explicitly discloses the use of air flow to determine defrost (15, see

column 3 lines 43-51). Berrett et al explicitly discloses the use of an elastic element which can be deflected from a rest position by air flow in a passage, combined with a position sensor and control circuit, to help control an air conditioning system for a building (32, 44, see figures 1 and 2; see also column 2 lines 64-67). It would therefore have been obvious to one of ordinary skill in the art at the time of the invention to use the flow sensor of Berrett et al in the system of Tilmanis as taught by Howland to control defrost in a way that has less delicate electronic parts to break and is therefore is more reliable.

10. Claims 14 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tilmanis (US Patent No. 3,839,878) in view of Pao (US Patent No. 4,736,594).

Regarding claims 14 and 24, it is noted that Tilmanis does not disclose the measuring device to include a pressure sensor to measure a dynamic air pressure in said passage indicative of air flow speed and said control circuit to determine a fall below the threshold value when said recorded pressure rises above said threshold value. Pao explicitly discloses the use of a pressure sensor (18, see column 5 lines 10-13) to determine air flow across the evaporator coil; indeed, when the air flow is sufficiently low, this will be detected as a high pressure drop, and will initiate defrost. As the systems of Pao and Tilmanis are both concerned with defrost control, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the pressure sensor of Pao in the system of Tilmanis for defrost control in place of the second temperature sensor of Tilmanis in order to have redundant data and error-checking in place in the system of Tilmanis. Additionally, the pressure sensor of the

system of Tilmanis in view of Pao is directly displaced by the airflow, as the pressure sensor works by detection of an amount of displacement.

11. Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tilmanis (US Patent No. 3,839,878) in view of Harbour (US Patent No. 3,248,894).

Regarding claim 19, it is noted that Tilmanis does not explicitly disclose the second temperature sensor to be arranged on an output of said passage. Harbour explicitly discloses the use of two temperature sensors to control defrost, with one being on the evaporator and the other being near the outlet of the evaporator air passage (66, 59, see column 3 lines 74-75 and column 4 lines 1-9). As the systems of Tilmanis and Harbour are highly similar in structure and function, it would have been obvious to one of ordinary skill in the art at the time of the invention to put the second temperature sensor of Tilmanis at the outlet of the evaporator passage, as is done by Harbour, in order to prevent false readings caused by close proximity to frozen objects.

Response to Arguments

12. Applicant's arguments filed 11/19/2009 have been fully considered but they are not persuasive. The reasons are as follows:

The applicant argues on page 8 that Tilmanis monitors temperature, and not airflow. The examiner concedes that Tilmanis does, indeed, monitor temperature; however, the fact that temperature is monitored does not negate the existence of a correlation between temperature and airflow. The relationship need not be explicitly disclosed by Tilmanis for it to exist. Therefore, this argument is unpersuasive.

The applicant further argues that the measuring device of Tilmanis is arranged partially within the food storage chamber. However, an arrangement such that part of the measuring device is arranged within the food storage chamber is not mutually exclusive with part of the measuring device being arranged in the air passage. Indeed, it is clearly evident that thermistor 36 must be in the air passage, because the thermistor is on the evaporator which is in the air passage. Therefore, this argument is unpersuasive.

It is argued on page 8 that claims 15-18 are allowable by virtue of their dependence upon independent claim 1; this is unpersuasive, as shown explicitly above. It is further argued that claim 15 recited "two temperature sensors which are thermally differently closely coupled to at least one of a heat source and a sink and the air in said passage indicative of air flow speed", where claim 16 recites the heat sink to be the evaporator.

The examiner questions how the presence of one temperature sensor on the evaporator, and the other in the food storage chamber, could be interpreted in any way other than as differently closely coupled to the heat sink. Should the applicant have a clearer explanation of what is meant by "differently closely coupled," which might be placed on the record without the addition of new matter, this is encouraged? The current interpretation which has been applied is that "differently closely coupled" means positioned at different distances from.

It is argued on page 9 that the method step of "estimating an air flow through said air passage in which said evaporator is arranged" is not present in Tilmanis.

First, the examiner respectfully suggests that there is an inherent correlation between air flow and the difference in temperature between the temperature sensors of Tilmanis, rendering this method step inherently present.

Second, if this method step were not present in Tilmanis alone, it would have been obvious based on the rejection on the record of dependent claims 12-14, independent claim 21, and dependent claims 22-24.

Accordingly, this argument is unpersuasive.

It is argued on page 10 that the sensor of Howland "merely" drives a clock timer gear train. However, as can clearly be seen from even the abstract of Howland, which clearly states "a switch responsive to conditions of revolution of the impeller such as the speed or length of time of revolution to thereby initiate a defrost signal." This explicitly discloses the speed of the impeller, which is a direct function of airspeed past the impeller, to be monitored. Accordingly, this argument is unpersuasive.

Further, it is argued on page 10 regarding claims 13 and 21 that the sensor of Berrett is not indicative of air flow speed. The examiner respectfully disagrees, as the indication of above or below a specific speed is still an indication of speed.

The applicant repeats the argument regarding the positioning of the measuring device on page 10 for claim 21. This is no more persuasive upon repetition.

Regarding claim 14, the applicant argues on page 11 that Pao senses a drop in pressure across the evaporator coil instead of the air flow across the evaporator coil.

The examiner respectfully disagrees. Airflow is cause by a difference in pressure. This difference may be induced by temperature difference, or by a mechanical source,

such as a fan. The amount of air flow across the evaporator coil is a direct function of the pressure difference across the coil; therefore, the sensor of Pao fulfills the function of claim 14 in the same way as claim 14 by providing the structure in of claim 14, which is more than is in fact required by structure claim 14.

The applicant argues on page 11 concerning claim 19 that moving the second sensor of Tilmanis to the exit of the air passage from the center of the freezer destroys an objective of Tilmanis. Although it is true that one of the objectives of Tilmanis is to control the defrost cycle of the evaporator according to the temperature sensor placement at or near the evaporator and in the freezing or refrigerating chamber (see column 1 lines 56-66), the examiner respectfully suggests that since this objective is so broad as to include either the refrigerator chamber or the freezer chamber for the placement of the second sensor, it does not destroy the reference to move the sensor to the exit of the airflow passage, especially given the explicitly disclosed reason to move the sensor in order to avoid false readings due to close proximity to frozen products. This is not a direct contrast, but merely a modification and improvement. Therefore, this argument is unpersuasive.

Conclusion

13. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Aoki (US Patent Application Publication No. 2009/0266093) discloses a refrigerating air conditioning system with similar defrost sensor.

14. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ALEXIS K. COX whose telephone number is (571)270-5530. The examiner can normally be reached on Monday through Thursday 9:00a.m. to 6:30p.m. EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Frantz Jules or Cheryl Tyler can be reached on 571-272-6681. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/AKC/